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Via Electronic Submission

Marlene H. Dortch, Secretary
Federal Communications Commission
Office of the Secretary
445 12th Street, SW,
Room TW-A325
Washington, DC 20554

RE: IB Docket No. 11-109
Comments Regarding the LightSquared Technical Working Group Report

Dear Ms. Dortch,

On behalf of Caterpillar Inc. ("Caterpillar"), I would like to offer the following comments regarding the report of the Technical Working Group mandated by the Federal Communications Commission ("FCC") and conducted jointly by LightSquared and the U.S. Global Positioning System ("GPS") Industry Counsel ("USGIC").

Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. Caterpillar began incorporating GPS systems in its machines and engines approximately 14 years ago. Today, virtually every machine sold by Caterpillar incorporates GPS technology. In North America alone, we have an installed base of approximately 50,000 machines and engines equipped with GPS based systems. That number is growing everyday as GPS based systems help our customers work more productively and more safely.

As a result, Caterpillar is extremely concerned with the results of the testing that was performed by the Technical Working Group which show that GPS reception, especially the high precision GPS receivers used by our industry, would be wiped out by LightSquared's proposed service. LightSquared operations and GPS are fundamentally incompatible and the FCC should order LightSquared out of that band.

While Caterpillar recognizes that more capacity for wireless broadband services is important, that capacity should not come at the expense of GPS, which is

critical to our country's economy. Resolution of the interference is the obligation of LightSquared, and it must bear the costs of preventing interference emanating from its devices. GPS users or providers, including Caterpillar and its customers, who have invested millions (perhaps even billions) of dollars in the development and use of high precision GPS technology, should not have to bear the consequences of LightSquared's actions.

Some examples of Caterpillar's GPS based systems that would be rendered inoperable by LightSquared's proposed service include:

- Caterpillar's Computer Aided Earthmoving System ("CAES"), which has been in use since 1997, is a technology that utilizes high precision GPS on earthmoving equipment used in mines, construction sites and landfills. This system allows a machine operator to have an electronic site plan in the machine's cab, and provides other information about the work being performed. Not only does this allow the operator to be more efficient, but it also allows him to remain in the protected environment of the cab while performing quality work. CAES reduces and, in many cases, eliminates rework, and also increases productivity by as much as 30 percent in some cases. This obviously has a positive impact on fuel savings, as well.

- GPS is also used in a wide variety of AccuGrade systems that control machine and job site operation. AccuGrade is a machine control and guidance system that allows machine operators to grade sites with increased accuracy, without the need for survey stakes. This system allows the operator to automatically check quality and accuracy from the protected environment of the machine cab, and eliminates the need for other personnel to work in close proximity to the machine in order to check quality and accuracy of the work. In many cases, customers have seen productivity increased by as much as 50 percent with the use of AccuGrade.

- GPS also enables accurate machine tracking and dispatching through the MineStar Fleet Management system. The MineStar system allows customers to effectively and safely manage their fleets by, among other things, allowing real time machine tracking and scheduling and high-precision management of operations through guidance technology.

- GPS is used in a wide variety of Caterpillar systems that improve safety. GPS is used to provide proximity alerts of other machines and light vehicles, helping operators avoid collisions. GPS is also used to warn machine operators they are approaching dangerous locations such as cliffs, underground obstacles and utilities.

Without reliable GPS receivers, thousands of earthmoving projects in the U.S. (including the many infrastructure rebuilding projects) will revert to less accurate

surveying methods and could take upwards of double the time to complete, while using 20-50% more fuel. In addition, fleet management systems will not work at all, resulting in machines taking more time to perform work and burning more fuel and in an increased number of machines required to complete project construction. Further, proximity and detection systems will no longer work, which will mean operators may be exposed to a higher risk of collisions, digging into buried utility lines, and other such hazards.

The results of the testing that was performed by the Technical Working Group at the FCC's request are conclusive - they show that GPS reception, especially the high precision GPS receivers used by our industry, would be wiped out by LightSquared's proposed service. Indeed, it is inconceivable to expect that a ground based transmitter, roughly 794,000,000,000 times more powerful than the distant GPS signal, would not have a profound affect on high precision GPS receivers on the adjacent GPS L1 frequency. In light of these results, the FCC should not allow LightSquared to keep experimenting with modified versions of its plan to use the spectrum near the GPS band. LightSquared operations and GPS are fundamentally incompatible and the FCC should order LightSquared out of that band.

In summary, Caterpillar firmly believes LightSquared's proposed system will cause unreliable GPS signals, and this belief was confirmed by the Technical Working Group's testing. If allowed to proceed, LightSquared's system will greatly increase the costs to operate construction sites and mines while exposing workers to unnecessary safety risks. GPS has transformed how Caterpillar products operate, and the loss of reliable GPS will cause our customers to revert to manual methods that take more time, use significantly more energy and are inherently more dangerous to their workforce

Caterpillar appreciates the opportunity to comment.

Sincerely,

Siamak Mirhakimi
General Manager
Caterpillar Electronics